REMARKS/ ARGUMENTS

In the specification, on page 3, line 17; on page 5, line 20; on page 9, line 29; and on page 10, line 5 have all been amended to correct editorial problems and misspelling.

In the claims, Claim 1 is amended. Original claims 2-5 remain in this application. Claim 6 is withdrawn as a result of an earlier restriction requirement.

The amendments in the claims introduce no new matter and are fully supported by the specification as filed.

Rejection under 35 U.S.C. § 103

Claims 1- 3 and 5 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Schwinn et al. (US Patent No. 6,235,390). The Applicant respectfully disagrees with this rejection over Schwinn et al. for at least the reason that Schwinn et al. teaches a solid phase polycondensation (SPP) process unlike that of the instant invention. In Schwinn et al. the SPP process is a part of a process for melt spinning polyamide filaments from high molecular weight polymer. High molecular weight polymer is synonymous with high relative viscosity (RV) as is known to the skilled person and taught by Schwinn et al. In order to achieve the required RV, Schwinn et al. teach building the RV of polyamide polymer flake using an SPP system. The resulting polymer flake is fed to a melt phase polymerization system coupled to a spin beam from which the melt spun filaments (or yarns) are processed. These melt spun filaments (or yarns) are characterized by a high yarn RV, typically in the range of 140 to 190 (see Col. 13 at Line 25 of Schwinn et al.) as measured by the formic acid method. By contrast, the melt spun filaments (or yarns) of the instant invention are characterized by a yarn RV in the range of about 51 to about 54 (see in the Specification on page 5, line 12); using the identical test method.

According to Schwinn et al., the polyamide polymer flake submitted to his SPP process has an RV in the range of about 40 to about 60 (see Col. 7 at line 30). Schwinn et al. perform an SPP step on this 40 to 60 RV polymer flake to achieve an RV in the range of 90 to 120. The Applicant's invention is characterized by a starting RV of about 36 to 38 (see in the Specification on page 4, line 22); which is a typical "as-synthesized" polyamide RV as known to the skilled person. After processing the polymer flake according the SPP steps characterizing the Applicant's invention, this 36 to 38 RV flake has an RV in the range of 50 to 53 (see in the Specification on page 4, line 34);. After submitting this "post-SPP" processed polymer flake to a

melt spinning process, the measured RV of yarns is about one RV unit increased or a range of 51 to 54(see in the Specification on page 5, line 12);. Such an RV range is within that range of RV from which the Schwinn et al. SPP process commences (see Schwinn et al., Column 7, lines 30-31).

It is clear that the Schwinn et al. process is immaterial to and aimed at the achievement of a different goal from that of the Applicant. The Schwinn et al. process actually starts from a polymer RV point (40 to 60) which would be, in the Applicant's invention, a suitable end-state polymer RV as measured in the melt spun yarn for the. This difference arises from the very different goal RV to be achieved by Schwinn et al. That is, a very high polymer RV after the SPP process, ca. 90 to 120. This goal is achieved, according to Schwinn et al., by using a very low dew point temperature circulating gas in the SPP vessel, no more than about 20°C but as low as –20°C. Accordingly, the result-effective variable is dew point temperature. The Schwinn et al. SPP process rigorously avoids water vapor, as measured by dew point temperature, in the treatment vessel. By contrast, the Applicant introduces to the SPP vessel nitrogen gas and water vapor which is circulated around the heated polymer flake supply to promote a uniformity in the molecular weight of the polymer flake and thus the polymer RV and perhaps remove some low molecular materials. It is the optimization of this treatment to the polymer flake which achieves the RV increase sought, which is a relatively modest increase, versus that increase taught by Schwinn et al.

The Applicant's invention provides a humidified purge gas in a preferred range of flow rate and system pressure (see in the Specification on page 4, lines 23-24). As a result, the polymer RV increase is highly uniform. This uniformity is reflected in the spun yarn property and correlation with an increase in time between required spinneret plate "wiping."
Finally, the skilled person would not look to the industrial high RV (90 to 120) yarn process of Schwinn et al. for guidance in designing an SPP system to be used in a textile yarn process where a yarn RV of 50-53 is sought.

Claim 1 is amended to include the starting (36 to 38) and final yarn RV (51-54) sought to provide clarity to the process as it differs from Schwinn et al. The Applicant maintains such combinations are not found in Schwinn et al.

With respect to Claim 2 which depends from amended Claim 1, the Applicant maintains the quenching and the cooling of the filaments so formed using the process of Claim 1 is a combination of elements not found or suggested in Schwinn et al.

With respect to Claim 3 which depends from amended Claim 2, the Applicant maintains the post treating and winding steps is a combination of elements not found or suggested in Schwinn et al.

With respect to Claim 5 which depends from amended Claim 1, the Applicant maintains the nitrogen purge gas is a combination of elements not found or suggested in Schwinn et al.

Claims 4 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Schwinn et al. (US Patent No. 6,235,390) further in view of Eberius et al. (US Patent No. 4,034,034). Eberius et al. disclose that "deposits ... easily form at the exit openings of the nozzles which may diminish the size of any individual opening to the point that it becomes impossible to extrude the required amount of polymer melt through the nozzle." In Column 2 of Eberius et al. starting with line 55 and bridging to Column 3 down to line 22, the cleaning method or "scraping" technique for removal of such deposits is described. Eberius et al. disclose their improvement involving the use of a silicone oil stabilized with a cerium compound treatment applied to the exit face of the nozzle plate, also known as a spinneret plate. Accordingly, Eberius et al. provides an example wherein a polyamide filament melt spinning process is compared with and without their silicone oil stabilized with cerium. In their description of that process, in Column 6 at lines 55 –60, the " time interval of 8 hours in the routine scraping procedure, only 0.83 addition interim scrapings are needed per 12 spinning positions per day" which is compared with a silicone oil "unstabilized" with the cerium compound where "5.36 interim scrapings are needed" under the same conditions. The facts of these examples mean that over e.g. 100 days running, 83 positions out of 1200 required "scraping" more often than 8 hours using their silicone oil stabilized with a cerium. This is to be compared with over 100 days running, 536 positions out of 1200 required "scraping" more often than 8 hours. These facts do not correlate with an improvement in wiping cycle. The 8 hour period used by Eberius et al. is fixed and characterized as "routine." Using their invention, Eberius et al. report that scraping some spinning positions more often than the routine 8 hours is necessary. By contrast, the instant invention refers to a wiping cycle which is not fixed or routine but observed to be a period dictated by the observation that at least 10 per cent of the filaments exiting the spinneret plate were bent. Using the process of the Applicant's invention it was found that 8 hours or more time, up to 12 hours, passed before at least 10 per cent of the filaments had a fault which initiated a wiping event. With respect to Claim 4 which depends from amended Claim 1, the Applicant maintains the wiping cycle time is a combination of elements not found in Schwinn et al. in combination with Eberius et al.

Claims 4 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Schwinn et al. (US Patent No. 6,235,390) further in view of Fourné (*Synthetic Fibers*, p. 359). The Fourné reference specifically discloses monomer or fume aspiration in "the first 5 ...15 cm below the spinneret." Aspiration is not equivalent to a teaching of spinneret wiping. Clearly, the intent of the Fourné reference is to teach that scraping of the monomer build-up in the quench cabinet and associated air handling duct work is important for keeping the flow of quench air uniform. Fourné points out this is particularly important for the cool portions of the quench sidewalls. The skilled person recognizes that the spinneret itself is neither cool nor is it part of the quench cabinet and associated sidewalls and would not expect condensation of monomer on the spinneret. With respect to Claim 4 which depends from amended Claim 1, the Applicant maintains the combination of elements claimed is not found in Schwinn et al. in combination with Fourné.

In view of the examiner's earlier restriction requirement, Applicant retains the right to present Claim 6 in a divisional application.

CONCLUSION

This was meant to be a complete reply. The Applicant respectfully submits that each and every rejection is overcome and maintains that the claims are in condition for allowance.

The Applicant respectfully requests the Examiner's issuance of a Notice of Allowance.

Should the Examiner have questions, the Applicant's representative would welcome an opportunity to discuss any questions. Should any fees be required with this amendment, please charge Deposit Account 503223 (INVISTA).

Dated: March 27, 2006

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